Technology Development News

Exploring The State Of The Art For The State Of The Practice

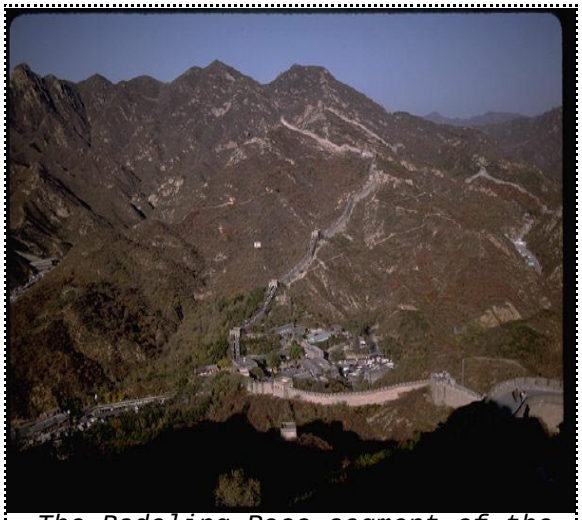
WESTERN FEDERAL LANDS HIGHWAY DIVISION

MAY **1998**

Change in the People's Republic of China

by Craig Dewey, Geotechnical Engineer, Western Federal Lands Highway Division

In 1985, I had the opportunity to travel to the People's Republic of China as a member of the Highway Construction and Maintenance Delegation sponsored by People to People, International. The exchange was part of People to People's Citizen Ambassador Program which brings together professionals from the United States (U.S.) with their counterparts in other countries. Last fall I had the opportunity to return to China with another Citizen Ambassador Program Highway Construction Delegation. I jumped at the chance to return and see what cultural, economic, and technological changes had occurred in this short twelve-year period.



The Badaling Pass segment of the Great Wall is one of the most visited tourist attractions in China.

Our 1985 trip took us to the Chinese cities of Beijing, Harbin, Kunming, Guanzhou, and Hong Kong. The trip originated in Seattle and connected to China through the Narita airport in Japan. Our 1997 trip traveled to Beijing, Kunming, and Shanghai. This trip originated in San Francisco and proceeded on to Beijing after clearing customs in Shanghai.

DEPARTMENT OF TRANSPORTATION UNITED STATES OF AMERICA

Federal Highway Administration

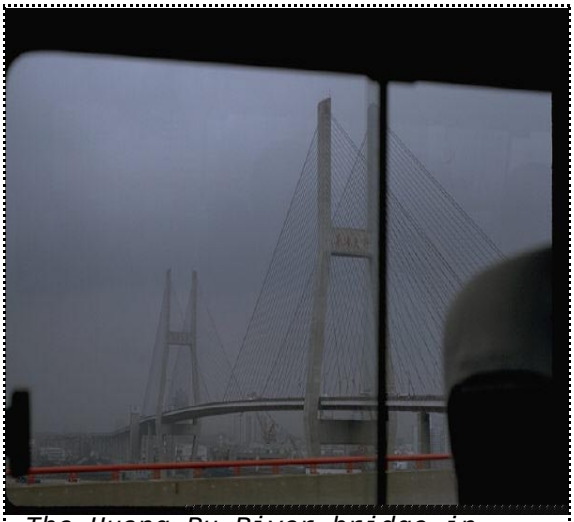
FEDERAL LANDS HIGHWAY

"Commitment to Excellence"

The new Shanghai Expressway winds its way above and through the city.

Beginning with the flight to China, today's China contrasts with 1985 China in almost every way. We flew direct to China in a modern Boeing 747-400. In 1985, there were few direct flights to China from the U.S. We traveled from Narita to Beijing in a twenty-year-old Boeing 707. Flights between cities in China were also in 707s. Flights between cities in China are now made in wide-body 767s full of people.

Traffic on China's highways is very different today. In 1985, farm produce trucks, tractor wagons, and horse-drawn wagons shared the slow lane of the six-lane, second ring expressway. Today, these vehicles are banned during daylight hours because they slow traffic too much. In 1985, personally-owned cars were almost nonexistent and taxis were rare. Today, lane-weaving cars rule the road, and traffic congestion — once an accident-related phenomenon — is now the norm. Traveling to our activities was direct in 1985. Today, the bus driver goes several kilometers out of a direct route in order to avoid the gridlock so prevalent during rush hour.Our delegation meetings with Chinese engineers were also different. In Beijing in 1985, we met at the headquarters of the Ministry of Communication. Our meeting lasted for two days and involved over fifty Chinese engineers. The engineers asked question after question, and many of our sessions ran over the allotted time. China was hungry for technology. On construction projects we saw much hand labor. We saw only one bulldozer on the entire three-week trip. The quality of the workmanship and materials incorporated into the work was often marginal.

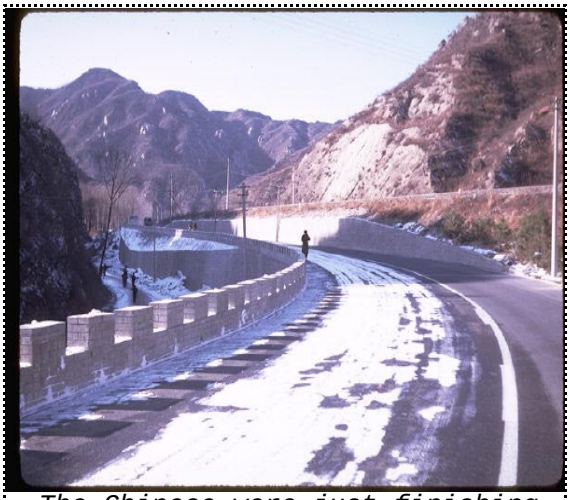


The Huang Pu River bridge in Shanghai implements state-of-the-art technology.

Our 1997 meetings involved fewer Chinese engineers. The centralized government engineering organizations are giving way to smaller, more market-based engineering groups. Collaboration of these engineering groups with academia is common. The overall experience level of the Chinese engineers has risen and the Chinese are developing much of their own technology. China has cable-stayed bridges and modern construction equipment. Material quality and workmanship have improved, though they are still somewhat lacking in general by U.S. standards. Technology sharing between other countries and China occurs more now on an incidental basis to commercial enterprises rather than by information sharing among professionals.

The biggest challenge facing China's highway engineers today is planning. The phenomenal growth rates make it difficult to predict and fund the improvements needed. Last fall, the Chinese were showcasing the new expressway to the Beijing airport. Yet, in 1985, they had just completed a new Class 2 highway to the airport. In 1985, we visited the previous Beijing-to-Badaling project, where

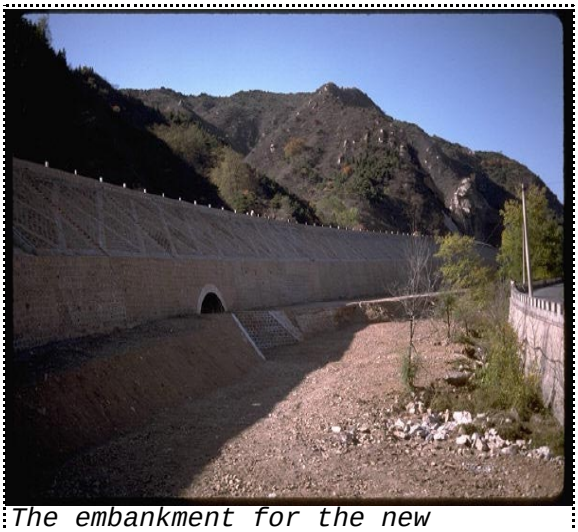
they were just putting the finishing touches on a new two-lane, Class 1 highway. This trip we watched them tearing up some of the 1985 work to build the new four-lane expressway to the Great Wall and points beyond.



The Chinese were just finishing construction on the Beijing to Badaling Highway in 1985.

In Shanghai, they recently completed a 46-kilometer expressway system. This expressway already suffers from traffic congestion and, at Shanghai's current growth rate, will be functionally obsolete within five years. Yet, no provision for adding future capacity was included in the design of this elevated system. To gain additional capacity will require that they tear down what they just built and start over. Gains, however, are being made in the planning area — Kunming, as it builds its new expressway system is also planning for a complementary light rail system.

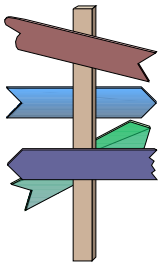
China has changed culturally as well. In 1985, the vast majority of Chinese people (outside of Guanzhou) wore the blue "Mao" suits. Today, the Chinese people wear western attire and the "Mao" suits have all but disappeared. The trend to a more consumptive society like that of the West is visible in many places, but still most prevalent in a coastal city like Shanghai. The standard of living has been raised for many people in China. This is good for those Chinese who are being carried up by the growth, but the associated higher prices for necessities are a hardship for those still living a more rural existence.



The embankment for the new southbound lanes of the Beijing to Badaling Expressway towers over the work constructed in the 1985 project (right edge of photo). The 1985 roadway will carry the northbound lanes.

The changes in China are both good and bad. Many people are better off today than twelve years ago. Individual freedom appears to be greater. On the down side, there is greater pollution and crime and less healthy food (as evidenced by the glut of western fast-food restaurants). The Chinese engineers have improved the quality of their constructed projects and continue to look for ways to improve their work. In spite of the negative aspects I have cited, I commend the Chinese for what they have accomplished in twelve years.

ROAD SIGNS



"Even if you ' re on the right track, you'll get run over if you just sit there."

-Will Rogers

We wish to thank all the individuals who have contributed articles for previous newsletters. If you are aware of a new technology, (or a fresh spin on an old one) please jot down your ideas and submit them via e-mail to me at the address below. Or, if you have an aversion to writing, just donate 15 minutes of your time for an interview (either by phone or in person), and I'll format the information for you. You can then review the article for accuracy (via e-mail or hard copy) and upon publication, you'll become famous in a matter of days. Remember, although we cater to road-related technology, ANY new technology information is welcome.

Please send all submissions to Kristi Swisher - (360.696.7572). Be sure your name, title, and phone number are the way you want them to appear in the article. Articles are subject to editor/ layout approval and may be condensed if space is limited.

For your convenience, all issues of the WFLHD Technology Development News are also available for viewing and downloading from the WFLHD Technology Development web page. We invite you to broaden your understanding of the WFLHD Technology Development Program.

Visit us at http://www.wfl.fha.dot.gov/td/.

Federal Highway Administration

610 East Fifth Street

Vancouver WA 98661